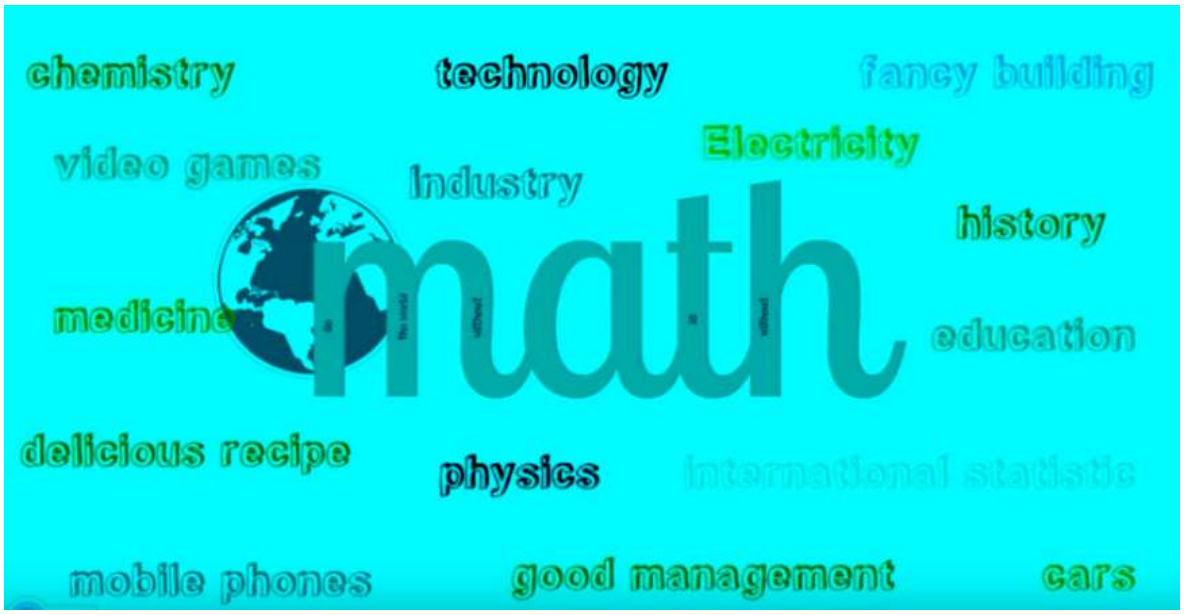
AL AIN JUNIORS SCHOOL INDIAN SYSTEM	**AL AINJUNIORSSCHOOL**	YEAR OF ZAYED
Grade: IX	**WINTER HOLIDAY ASSIGNMENTS - MATHS**	**SUBMISSION DATE** 06th Jan 2019

I **How Mathematics is connected to Real Life? Can you imagine a world without mathematic applications?**



Explore, unleash your imaginations and come out with an innovative project to prove that mathematics is really applied in daily life.

II Choose the Correct Answers (Questions from Previous Years)

1. The rationalizing factor of $\frac{1}{\sqrt{50}}$ is ----------

(A) $5\sqrt{2}$ (B) 50 © $\sqrt{2}$ (D)$\sqrt{5}$

2 The simplest form of rational number $\frac{177}{413}$ is

(A) $\frac{2}{59}$ (B)$\frac{7}{13}$ (C) $\frac{3}{7}$ (D) $\frac{3}{5}$

3 The decimal which represents the fraction $\frac{7}{8}$ is

(A) 0.775 (B) 0.875 (C)0.0875 (D) 0.845

4 The degree of a zero polynomial is ;

(A) 0 (B) 1 (C) 2 (D) Not defined

5. Two planes intersect each other to form a:

(A) Plane (B) Point (C) Straight Line (D) Angle

6 Two angles measure $(30^0 - a)$ and $(125^0 + 2a)$. If each one is the supplement of the other, then the value of a is:

(A) 45^0 (B) 35^0 (C) 25^0 (D) 65^0

7 It is not possible to construct a triangle, when its sides are:

(A) 8.3 cm, 3.4 cm, 6.1 cm (B) 5.4 cm, 2.3 cm, 3.1 cm (C) 6 cm, 7 cm, 10 cm (D) 3 cm, 5 cm, 5 cm

8 The area of a triangle formed by joining the points (4, 0), (0, 0), (0, 4) is:

(A) 4 sq. units (B) 12 sq. units (C) 8 sq. units (D) 16 sq. units

9. A cubic polynomial has no. of zeroes:

(A) 2 (B) 1 (C) 3 (D) At least three

10. If $(a + b + c) = 0$, then $a^3 + b^3 + c^3$ is equal to:

(A) abc (B) 3abc (C) 2abc (D) 4abc

III Answer the following questions (PREVIOUS YEARS CBSC BOARD QUESTIONS)

1. Where do the following points lie? a. (–4, 0) b. (–10, 2) c. (0, 8) d. (10, 4)

2. Simplify: $(5 + \sqrt{5})(5 - \sqrt{5})$

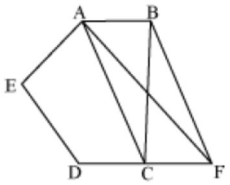
3. Find the value of p such that (x – 1) is a factor of the polynomial $x^3 + 10x^2 + px$?

4. In Δ ABC, ∠A = 100° and AB = AC. Find ∠ B?

5. Simplify:
$$\left(\frac{81}{16}\right)^{-3/4} \times \left(\frac{25}{9}\right)^{-3/2}$$

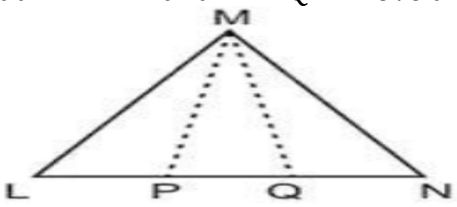
6. Factorise: $x^2 + \frac{1}{x^2} + 2 - 2x - \frac{2}{x}$

7. In the given figure, ABCDE is a pentagon. A line through B and parallel to AC meets DC produced at F. Show that area(ΔACB) = area(ΔACF).



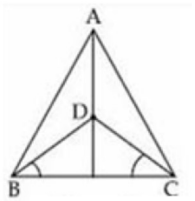
8. (x + 2) is one of the factors of the polynomial $x^3 + 13x^2 + 32x + 20$. Find its remaining factors.

9. In the figure, it is given that LM = MN and LP = QN. Prove that Δ LMQ ≅ ΔNMP



10. Show that the line segments joining the mid points of the opposite sides of a quadrilateral bisect each other.

11. In figure, AB = AC, D is the point in the interior of Δ ABC such that ∠DBC = ∠ DCB. Prove that AD bisects ∠ BAC of Δ ABC.



12. Show that the line segments joining the mid points of the opposite sides of a quadrilateral bisect each other.

13. Find the value of:

$$\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}+\frac{1}{\sqrt{7}-\sqrt{6}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}$$

14. How does Euclid's fifth postulate imply the existence of parallel lines? Give a mathematical proof.

15. Show that the median of a triangle divides it into two triangles of equal area

16. A farmer was having a field in the form of a parallelogram PQRS. She took any point Aon RS and joined it to points P and Q. In how many parts the fields is divided? What are the shapes of these parts? The farmer wants to sow wheat and pulses in equal portions of the field separately? How should she do it?

17. Represent $\sqrt{9.3}$ on the number line.

18. Ram has two rectangles in which their areas are given:

(I) $25a^2 - 35a + 12$ (II) $35y^2 + 13y - 12$

(i) Give possible expressions for the length and breadth of each of the rectangles.

(ii) Which mathematical concept used in this problem.

19. If a point C lies between two points A and B such that AC = BC, then prove that AC = ½ AB. Explain by drawing the figure.

20. A square is a polygon made up of four-line segments, out of which, length of three-line segments are equal to the length of fourth one and all its angles are right angles. Define the terms used in this definition which you feel necessary. Are there any undefined terms in this? Can you justify that all angles and sides of a square are equal?